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Federal Communications Commission
Washington, D. C. 20554

Approved by OMB
3060-0627
Expires 01/31/98

FOR FCC USE ONLY

FCC 302-AM
APPLICATION FOR AM BROADCAST STATION LICENSE

(Please read instructions before filling out form.

FOR COMMISSION USE ONLY
FILE NO. BAML-20100920AFA

SECTION I - APPLICANT FEE INFORMATION

1. PAYOR NAME (Last, First, Middle Initial)

Disney Worldwide Services, Inc

MAILING ADDRESS (Line 1) (Maximum 35 characters)
77 West 66th Street, 16th Floor

MAILING ADDRESS (Line 2) (Maximum 35 characters)
ATTN: John Zucker

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
New York	NY	10023-6298

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
212-456-7777	WBWL	Fac. ID # 53588

2. A. Is a fee submitted with this application? ☑ Yes ☐ No

B. If No, indicate reason for fee exemption (see 47 C.F.R. Section

☐ Governmental Entity ☐ Noncommercial educational licensee ☐ Other (Please explain):

C. If Yes, provide the following information:

Enter in Column (A) the correct Fee Type Code for the service you are applying for. Fee Type Codes may be found in the "Mass Media Services Fee Filing Guide." Column (B) lists the Fee Multiple applicable for this application. Enter fee amount due in Column (C).

(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
MMR	0001	$ 615.00	

To be used only when you are requesting concurrent actions which result in a requirement to list more than one Fee Type Code.

(A)	(B)	(C)	FOR FCC USE ONLY
MOR	0001	$ 705.00	

ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.	TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
	$ 1320.00	

210325 AAT

CLEAR ALL PAGES

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT Radio Disney Group, LLC		
MAILING ADDRESS 77 West 66th Street, 16th Floor		
CITY New York	STATE NY	ZIP CODE 10023-6298

2. This application is for:

☑ Commercial ☐ Noncommercial

☑ AM Directional ☑ AM Non-Directional

Call letters	Community of License	Construction Permit File No.	Modification of Construction Permit File No(s).	Expiration Date of Last Construction Permit
WBWL	Jacksonville FL	BP-20100325AAT	NA	June 30, 2013

3. Is the station now operating pursuant to automatic program test authority in accordance with 47 C.F.R. Section 73.1620? PTA HEREBY REQUESTED.

If No, explain in an Exhibit. NOW OPERATING PER 73.1615(b)(6), AT CP POWER LESS THAN OLD LICENSED.

☐ Yes ☑ No

Exhibit No.

4. Have all the terms, conditions, and obligations set forth in the above described construction permit been fully met?

If No, state exceptions in an Exhibit.

☑ Yes ☐ No

Exhibit No.

5. Apart from the changes already reported, has any cause or circumstance arisen since the grant of the underlying construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect?

If Yes, explain in an Exhibit.

☐ Yes ☑ No

Exhibit No.

6. Has the permittee filed its Ownership Report (FCC Form 323) or ownership certification in accordance with 47 C.F.R. Section 73.3615(b)?

If No, explain in an Exhibit.

☑ Yes ☐ No

☐ Does not apply

Exhibit No.

7. Has an adverse finding been made or an adverse final action been taken by any court or administrative body with respect to the applicant or parties to the application in a civil or criminal proceeding, brought under the provisions of any law relating to the following: any felony; mass media related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination?

If the answer is Yes, attach as an Exhibit a full disclosure of the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), and the disposition of the litigation. Where the requisite information has been earlier disclosed in connection with another application or as required by 47 U.S.C. Section 1.65(c), the applicant need only provide: (i) an identification of that previous submission by reference to the file number in the case of an application, the call letters of the station regarding which the application or Section 1.65 information was filed, and the date of filing; and (ii) the disposition of the previously reported matter.

☐ Yes ☑ No

Exhibit No.

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8. Does the applicant, or any party to the application, have a petition on file to migrate to the expanded band (1605-1705 kHz) or a permit or license either in the existing band or expanded band that is held in combination (pursuant to the 5 year holding period allowed) with the AM facility proposed to be modified herein?

☐ Yes ☑ No

If Yes, provide particulars as an Exhibit.

Exhibit No.

The APPLICANT hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because use of the same, whether by license or otherwise, and requests and authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended).

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations and that all the exhibits are a material part hereof and are incorporated herein as set out in full in

CERTIFICATION

1. By checking Yes, the applicant certifies, that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits that includes FCC benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. Section 1.2002(b).

☑ Yes ☐ No

2. I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Name	Signature	
John W. Zucker		
Title	Date	Telephone Number
ASSISTANT SECRETARY	10.10.10	212.456.7777

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of the application is in the public interest. In reaching that determination, or for law enforcement purposes, it may become necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Your response is required to obtain the requested authorization.

Public reporting burden for this collection of information is estimated to average 639 hours and 53 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Records Management Branch, Paperwork Reduction Project (3060-0627), Washington, D. C. 20554. Do NOT send completed forms to this address.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

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Original

FCC FORM 302-AM, SECTION III

APPLICATION FOR STATION LICENSE
(Method of Moments Proof)

RADIO STATION WBWL
(Facility ID # 53588)
CP File # BP20100325AAT

Radio Disney Group, LLC.

600 kHz, 5.0/1.8 kW, DA-N

Jacksonville, Florida

AUGUST, 2010

WILLOUGHBY & VOSS
BROADCAST TECHNICAL CONSULTANTS
P.O. BOX 701190
SAN ANTONIO, TEXAS 78270-1190
(210) 525-1111

Radio Disney Group, LLC.
WBWL RADIO
600 kHz, 5.0/1.8 kW, DA-N
JACKSONVILLE, FLORIDA
AUGUST, 2010

APPLICATION FOR STATION LICENSE
(Method of Moments Proof)

FCC Form 302, Section III

Technical Summary Statement

Exhibits:

1. Verification of Method of Moments Model
2. DA-Night Operating Parameter Determination
3. Details of Model for Towers Individually Driven
4. Detail of Model for DA-NIGHT
5. Sample System Measurements
6. Reference Field Strength Measurements
7. Direct Measurement of Power
8. Antenna Monitor and Sample System
9. Radio Frequency Radiation Considerations
10. Summary of As Built Certified Array Geometry

Appendix A Land Surveyor's Certified Documents

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant
Radio Disney Group, LLC.

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

X Station License W Direct Measurement of Power

1. Facilities authorized in construction permit					
Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
WBWL	BP20100325AAT	600	Unlimited	1.8	5.0

2. Station location	
State	City or Town
Florida	Jacksonville

3. Transmitter location			
State	County	City or Town	Street address (or other identification)
FL	Jacksonville	Jacksonville	6869 Lenox Ave.

4. Main studio location			
State	County	City or Town	Street address (or other identification)
FL	Jacksonville	Jacksonville	10245 Centurian Pkwy N.

5. Remote control point location (specify only if authorized directional antenna)			
State	County	City or Town	Street address (or other identification)
FL	Jacksonville	Jacksonville	10245 Centurian Pkwy N.

6. Has type-approved stereo generating equipment been installed? W **Yes** X **No**

7. Does the sampling system meet the requirements of 47 C.F.R. Section 73.68? X **Yes** W **No**

W Not Applicable

Attach as an Exhibit a detailed description of the sampling system as installed.

Exhibit No. Exh. 5 & 8

8. Operating constants:	
RF common point or antenna current (in amperes) without modulation for night system 6.24	RF common point or antenna current (in amperes) without modulation for day system 15.38
Measured antenna or common point resistance (in ohms) at operating frequency Night: 50.0 Day: 21.13	Measured antenna or common point reactance (in ohms) at operating frequency Night: -j 7.0 Day: -j 70.9

Antenna indications for directional operation

Towers	Antenna monitor Phase reading(s) in degrees		Antenna monitor sample current ratio(s)		Antenna base currents	
	Night	Day	Night	Day	Night	Day
1 (E)	-159.2		0.761			
2 (C)	0.0		1.000			
3 (W)	+155.9		0.588			

Manufacturer and type of antenna monitor: Potomac Instruments 1901-5, Ser #528

SECTION III - Page 2

9. Description of antenna system (If directional antenna is used, the information requested below should be given for each element of the array. Use separate sheets if necessary.) T1 ASR# 1040348, T2 ASR# 1040349, T3 ASR# 1040350

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
3 uniform cross-section, base insulated, guyed, steel towers.	91.6	93.3	93.9	Exhibit No. DNA

Excitation [X] Series [ ] Shunt

Geographic coordinates to nearest second. For directional antenna give coordinates of center of array. For single vertical radiator give tower location. T3(W) Day ND 30-18-00, 81-45-34

North Latitude	°	'	"	West Longitude	°	'	"
	30	18	00		81	45	29

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits. Exhibit No. Exh. 7

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system. Exhibit No. Tech. Sum.

10. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

Does Not Apply

11. Give reasons for the change in antenna or common point resistance.

Does Not Apply

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Name (Please Print or Type)	Signature (check appropriate box below)
Lyndon H. Willoughby	Lyndon H. Willoughby
Address (include ZIP Code)	Date
Willoughby & Voss, LLC. P.O. Box 701190 San Antonio, Texas 78270-1190	August 16, 2010
	Telephone No. (Include Area Code) 210-862-5285 email: willvoss@satx.rr.com

[ ] Technical Director

[ ] Chief Operator

[ ] Other (specify)

[ ] Registered Professional Engineer

[X] Technical Consultant

WBWL - Technical Summary Statement

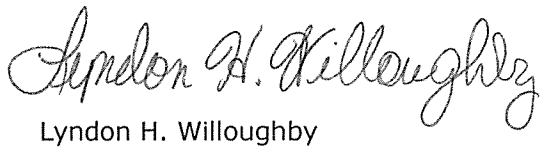
These technical exhibits support an application for station license for radio station WBWL, Jacksonville, Florida. WBWL operates on 600 kHz, with a daytime non-directional power of 5.0 kW. WBWL has now completed construction of a new 1.8 kW nighttime directional antenna as authorized in Permit # BP20100325AAT.

Information is provided herein demonstrating that the directional antenna parameters for the nighttime pattern have been determined in accordance with the requirements of Section 73.151(c) of the FCC Rules. The system has been adjusted to produce antenna monitor parameters within +/- 5 percent in ratio and +/- 3 degrees in phase of the modeled values, as required by the Rules.

WBWL has removed two towers of the previously liscensed five tower array. The remaining Towers 1, 2 and 3 make up the array described in the covering FCC Construction Permit and are further identified as; East, Center and West, respectively.

The two conditions specified in the CP are: 1.) Submit a proof of performance, 2.) Utilize a type accepted transmitter. Condition #1. is met by the instant Method Of Moments proof of performance. Condition #2 is met in that WBWL utilizes a Nautel XR-6 AM transmitter.

The ground system below each tower was replaced by 120 buried radial wire. The radial wires extend 90 degrees in all directions from the base of each tower, except for Tower 1(E) where they are trucated by heavy woods and a flowing creek. Where radials from adjacent towers intersect, they are cut and bonded to a transverse 4" copper strap.



Lyndon H. Willoughby
Willoughby & Voss, LLC.
August 16, 2010

WBWL - Verification of Method of Moments Model - Exhibit 1

The base impedance of each tower was measured with a Hewlett-Packard 8753C network analyzer and a Tunwall Radio directional coupler, in a calibrated measurement system.

The measurement point and the open circuit point ("Reference Point"), was at the normal mounting location of the toroidal transformer (removed for calibration measurements). The RF current travels on copper tubing through the ATU bowl insulator and is connected to the tower. The shunt components between the "Reference Point" and each tower base are as follows:

Tower 1 (E) - the feedline inductance (32.8 ohms) in series with a high impedance (+j 2.32 kohm) tower lighting choke. This inductance is in parallel to ground with the shunt/distributed capacitance of the base insulator (30 pF) and results in a net reactance of +j 1,858 ohms.

Tower 2 (Cntr) - the feedline inductance (24.1 ohms) in series with a high impedance (+j 8.9 kohm) static drain choke. This inductance is in parallel to ground with the shunt/distributed capacitance of the base insulator (30 pF) and results in a net reactance of -j 4,441 ohms.

Tower 3 (W) - the feedline inductance (9.28 ohms) in series with a high impedance (+j 2.32 kohm) tower lighting choke. This inductance is in parallel to ground with an ERI Model 425, FM iso-coupler which has a manufacturer's shunt capacitance value of 60 pF (-j 4.42 kohm) and the shunt/distributed capacitance of the base insulator (30 pF) and results in a net reactance of +j 1,300.9 ohms. This tower supports a twelve bay auxiliary FM antenna.

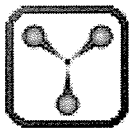
Due to the high impedance of these components, they exhibited little effect on the circuit impedance but were included in the process of calibrating the method of moments model ("model") to converge with the measured self impedances.

The following pages show the calculation of circuits which were performed to relate the model impedances of the tower feedpoints to the Reference Point measured impedances. Westberg Circuit Analysis Program ("WCAP"), was used to calculate values for the assumed circuit.

In each of the WCAP tabulations, node 2 represents the ATU Reference Point and node 3 represents the feedpoint of the tower. Ground potential is represented by node 0.

The calculated Reference Point impedance is shown below "TO IMPEDANCE" on line R 1>2 following the phantom 1.0 ohm resistors that were included in series with the drive current sources (I 0 1), to provide calculation points for the impedances. The tower feedpoint impedances from the method of moments model are represented by complex loads from node 3 to ground (R 3>0). The assumed stray capacitance and the inductance of lighting/static drain chokes for the three towers appear at C 3>0 and L 2>0 on the WCAP printout. Their combined equivalent circuit appears as the lumped load on the model with the net values stated above.

The modeled and measured self-impedance at the ATU Reference Point, with all other towers open circuited at their Reference Point, agree within the +/-2 ohms and +/- 4% (resistance and reactance), as required by the FCC Rules.



WCAP - WBWL T1 OC Self analysis 072010

WCAP OUTPUT AT FREQUENCY: 0.600 MHz

NODE VOLTAGES

Node:	1	73.8917 ∠	-74.9707° V
Node:	2	73.6387 ∠	-75.7222° V
Node:	3	106.7295 ∠	-80.0632° V

	WCAP PART		CURRENT IN	CURRENT OUT

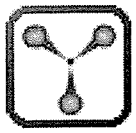
	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
L	2→3	8.68900000	33.77 ∠ 90.435° V	1.03 ∠ 0.435° A
R	1→2	1.00000000	1.00 ∠ 0.000° V	1.00 ∠ 0.000° A
C	3→0	0.00003000	106.73 ∠ -80.063° V	0.01 ∠ 9.937° A
R	3→0	17.49400000	106.73 ∠ -80.063° V	1.02 ∠ 0.323° A
L	2→0	615.40000000	73.64 ∠ -75.722° V	0.03 ∠ -165.722° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
L	2→3	8.68900000	17.09 - j 69.364	17.09 - j 102.121
R	1→2	1.00000000	19.16 - j 71.364	18.16 - j 71.364
C	3→0	0.00003000	0.00 - j 8841.941	0.00 + j 0.000
R	3→0	17.49400000	17.49 - j 103.280	0.00 + j 0.000
L	2→0	615.40000000	-0.00 + j 2320.003	0.00 + j 0.000

	WCAP PART	VSWR

WCAP INPUT DATA:

	0.6000	0.00001000	1	
L	8.68900000	2	3	0.00000000
R	1.00000000	1	2	0.00000000
I	1.00000000	0	1	0.00000000
C	0.00003000	3	0	
R	17.49400000	3	0	-103.28000000
L	615.40000000	2	0	0.00000000



WCAP - WBWL T2 OC Self analysis 072010

WCAP OUTPUT AT FREQUENCY: 0.600 MHz

NODE VOLTAGES

Node:	1	85.0016 ∠	-77.2732° V
Node:	2	84.7869 ∠	-77.9324° V
Node:	3	108.6717 ∠	-80.5866° V

	WCAP PART	CURRENT IN	CURRENT OUT

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
L	2→3	6.38500000	24.30 ∠ 90.113° V	1.01 ∠ 0.113° A
R	1→2	1.00000000	1.00 ∠ 0.000° V	1.00 ∠ 0.000° A
C	3→0	0.00003000	108.67 ∠ -80.587° V	0.01 ∠ 9.413° A
R	3→0	17.82600000	108.67 ∠ -80.587° V	1.00 ∠ -0.001° A
L	2→0	2360.80000000	84.79 ∠ -77.932° V	0.01 ∠ -167.932° A

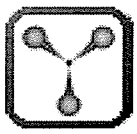
	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
L	2→3	6.38500000	17.40 - j 82.182	17.40 - j 106.253
R	1→2	1.00000000	18.73 - j 82.913	17.73 - j 82.913
C	3→0	0.00003000	-0.00 - j 8841.941	0.00 + j 0.000
R	3→0	17.82600000	17.83 - j 107.510	0.00 + j 0.000
L	2→0	2360.80000000	0.00 + j 8900.006	0.00 + j 0.000

	WCAP PART	VSWR

WCAP INPUT DATA:

0.6000 0.00001000 1

L	6.38500000	2	3	0.00000000
R	1.00000000	1	2	0.00000000
I	1.00000000	0	1	0.00000000
C	0.00003000	3	0	
R	17.82600000	3	0	-107.51000000
L	2360.80000000	2	0	0.00000000



WCAP - WBWL T3 OC Self analysis 072010

WCAP OUTPUT AT FREQUENCY: 0.600 MHz

NODE VOLTAGES

Node:	1	73.8196 ∠	-72.4863° V
Node:	2	73.5248 ∠	-73.2295° V
Node:	3	82.7491 ∠	-75.0841° V

	WCAP PART		CURRENT IN	CURRENT OUT

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
L	2→3	2.46200000	9.56 ∠ 90.508° V	1.03 ∠ 0.508° A
R	1→2	1.00000000	1.00 ∠ -0.001° V	1.00 ∠ -0.001° A
C	3→0	0.00009000	82.75 ∠ -75.084° V	0.03 ∠ 14.916° A
R	3→0	21.07900000	82.75 ∠ -75.084° V	1.00 ∠ 0.110° A
L	2→0	615.40000000	73.52 ∠ -73.229° V	0.03 ∠ -163.229° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
L	2→3	2.46200000	19.98 - j 68.502	19.98 - j 77.783
R	1→2	1.00000000	22.21 - j 70.398	21.21 - j 70.398
C	3→0	0.00009000	0.00 - j 2947.314	0.00 + j 0.000
R	3→0	21.07900000	21.08 - j 79.745	0.00 + j 0.000
L	2→0	615.40000000	0.00 + j 2320.003	0.00 + j 0.000

	WCAP PART	VSWR

WCAP INPUT DATA:

0.6000 0.00001000 1

L	2.46200000	2	3	0.00000000
R	1.00000000	1	2	0.00000000
I	1.00000000	0	1	0.00000000
C	0.00009000	3	0	
R	21.07900000	3	0	-79.74500000
L	615.40000000	2	0	0.00000000

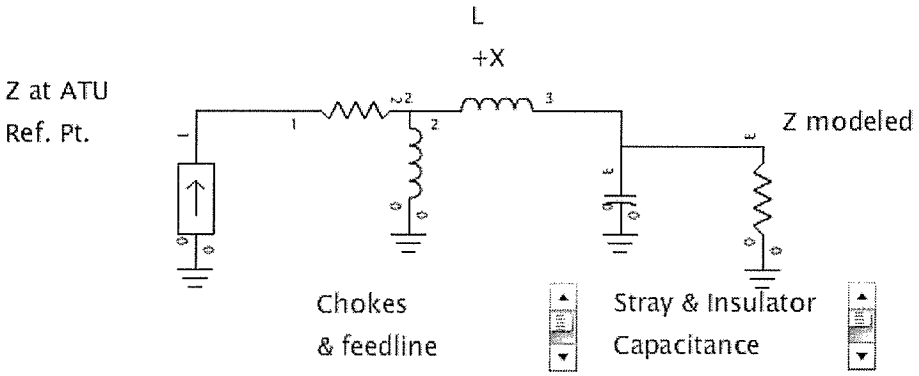
VERIFICATION OF METHOD OF MOMENTS MODEL

WBWL, 600 kHz, 5.0/1.8 kW, DA-N
Jacksonville, Florida

Center Frequency 0.6 MHz

Frequency Range 20 kHz

Frequency Step 0.01 kHz



(Feedlines, Chokes & Strays combined as Xoc)

TWR	L(uH)	XL	Xoc	Z modeled	Z ATU (model)	Z ATU (msrd)
1	8.689	+j 32.76	+j 1858	17.494 –j 103.28	18.16 –j 71.364	18.657 –j 70.512
2	6.385	+j 24.07	-j 4441	17.825 –j 107.51	17.73 –j 82.913	17.832 –j 83.438
3	2.462	+j 9.281	+j 1301	21.079 –j 79.745	21.21 –j 70.398	21.145 –j 70.449

WBWL - DA-NIGHT Operating Parameter Determination - Exhibit 2

After converging the model with the measured open-circuit self impedance for each tower in the array, the model was used to make the directional antenna calculations.

The model calculated the voltage values for the source point of each tower in the array, as well as the tower currents. The summation of current moments, when normalized, equate to the theoretical field parameters which produce the directional pattern.

The ATU output currents were calculated using WCAP nodal analysis. WCAP input data consists of:

- Tower currents calculated using the method of moments model for the directional antenna.
- Tower operating impedances calculated by the method of moments for the directional antenna. In WCAP these are treated as a complex load from node 3 to ground.
- The circuit values which were derived from analysis of the measured open-circuit self impedances.

The WCAP nomenclature, in the following tabulations are defined as:

- Node 2 is the ATU Reference Point (where the TCT sampler is located).
- Node 3 is the tower feedpoint.
- Node 0 is ground potential.
- Node 1>2 is a phantom 1.0 ohm resistor.
- Node 2>3 is the assumed series reactance.
- Node 3>0 is both the assumed shunt capacitance of base insulator & strays, as well as a resistor that represents the complex load presented by the tower.
- "TO IMPEDANCE" is the impedance from one node to the following node.

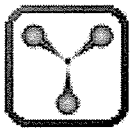
Since the TCT samplers and the sampling lines are identical, the antenna monitor ratios and phases corresponding to the theoretical parameters were calculated directly from the modeled ATU currents.

WBWL - DA-NIGHT Operating Parameter Determination - Exhibit 2

WBWL, 600 kHz, 5.0/1.8 kW, DA-N

Jacksonville, Florida

TOWER	Modeled Current Node	Current Magnitude @ TCT in amps	Current Phase @ TCT in degrees	Antenna Monitor Ratio	Antenna Monitor Phase in deg
1(E)	1	11.56	+201.4	0.761	-159.2
2(Cntr)	11	15.20	+0.4	1.000	00.0
3(W)	21	8.93	+156.3	0.588	+155.9



WCAP - WBWL T1 DA-Night Ref. Pt. 072010

WCAP OUTPUT AT FREQUENCY: 0.600 MHz

NODE VOLTAGES

Node:	1	684.9746 ∠	115.5431° V
Node:	2	684.2043 ∠	114.5778° V
Node:	3	1072.1173 ∠	113.3995° V

	WCAP PART		CURRENT IN	CURRENT OUT

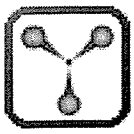
	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
L	2→3	8.68900000	388.31 ∠ -68.677° V	11.85 ∠ -158.677° A
R	1→2	1.00000000	11.56 ∠ -158.760° V	11.56 ∠ -158.760° A
C	3→0	0.00003000	1072.12 ∠ 113.399° V	0.12 ∠ -156.601° A
R	3→0	3.34500000	1072.12 ∠ 113.399° V	11.73 ∠ -158.698° A
L	2→0	615.40000000	684.20 ∠ 114.578° V	0.29 ∠ 24.578° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
L	2→3	8.68900000	3.28 - j 57.624	3.28 - j 90.381
R	1→2	1.00000000	4.45 - j 59.087	3.45 - j 59.087
C	3→0	0.00003000	-0.00 - j 8841.941	0.00 + j 0.000
R	3→0	3.34500000	3.34 - j 91.313	0.00 + j 0.000
L	2→0	615.40000000	0.00 + j 2320.003	0.00 + j 0.000

	WCAP PART	VSWR

WCAP INPUT DATA:

	0.6000	0.00001000	1	
L	8.68900000	2	3	0.00000000
R	1.00000000	1	2	0.00000000
I	11.56000000	0	1	201.24000000
C	0.00003000	3	0	
R	3.34500000	3	0	-91.31300000
L	615.40000000	2	0	0.00000000



WCAP - WBWL T2 DA-Night Ref Pt 072010

WCAP OUTPUT AT FREQUENCY: 0.600 MHz

NODE VOLTAGES

Node:	1	1106.3019 ∠	-84.9755° V
Node:	2	1105.1806 ∠	-85.7608° V
Node:	3	1473.3335 ∠	-86.7133° V

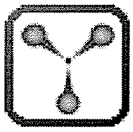
	WCAP PART		CURRENT IN		CURRENT OUT	
	WCAP PART		BRANCH VOLTAGE		BRANCH CURRENT	
L	2→3	6.38500000	368.76 ∠	90.431° V	15.32 ∠	0.431° A
R	1→2	1.00000000	15.20 ∠	0.400° V	15.20 ∠	0.400° A
C	3→0	0.00003000	1473.33 ∠	-86.713° V	0.17 ∠	3.287° A
R	3→0	4.89700000	1473.33 ∠	-86.713° V	15.15 ∠	0.400° A
L	2→0	2360.80000000	1105.18 ∠	-85.761° V	0.12 ∠	-175.761° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
L	2→3	6.38500000	4.79 - j 71.981	4.79 - j 96.052
R	1→2	1.00000000	5.87 - j 72.565	4.87 - j 72.565
C	3→0	0.00003000	0.00 - j 8841.941	0.00 + j 0.000
R	3→0	4.89700000	4.90 - j 97.104	0.00 + j 0.000
L	2→0	2360.80000000	-0.00 + j 8900.006	0.00 + j 0.000

WCAP PART	VSWR

WCAP INPUT DATA:

```
      0.6000      0.00001000   1
L        6.38500000   2   3      0.00000000
R        1.00000000   1   2      0.00000000
I       15.19600000   0   1      0.40000000
C        0.00003000   3   0
R        4.89700000   3   0    -97.10400000
L     2360.80000000   2   0      0.00000000
```



WCAP - WBWL T3 DA-Night Ref Pt 072010

WCAP OUTPUT AT FREQUENCY: 0.600 MHz

NODE VOLTAGES

Node:	1	671.4069 ∠	69.1163° V
Node:	2	671.0273 ∠	68.3543° V
Node:	3	756.5855 ∠	68.1292° V

	WCAP PART		CURRENT IN	CURRENT OUT
	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
L	2→3	2.46200000	85.60 ∠ -113.636° V	9.22 ∠ 156.364° A
R	1→2	1.00000000	8.93 ∠ 156.300° V	8.93 ∠ 156.300° A
C	3→0	0.00009000	756.59 ∠ 68.129° V	0.26 ∠ 158.129° A
R	3→0	2.67300000	756.59 ∠ 68.129° V	8.97 ∠ 156.314° A
L	2→0	615.40000000	671.03 ∠ 68.354° V	0.29 ∠ -21.646° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
L	2→3	2.46200000	2.53 - j 72.712	2.53 - j 81.993
R	1→2	1.00000000	3.69 - j 75.061	2.69 - j 75.061
C	3→0	0.00009000	0.00 - j 2947.314	0.00 + j 0.000
R	3→0	2.67300000	2.67 - j 84.337	0.00 + j 0.000
L	2→0	615.40000000	0.01 + j 2320.003	0.00 + j 0.000

WCAP PART	VSWR

WCAP INPUT DATA:

```
      0.6000     0.00001000   1
L       2.46200000   2   3      0.00000000
R       1.00000000   1   2      0.00000000
I       8.93400000   0   1    156.30000000
C       0.00009000   3   0
R       2.67300000   3   0    -84.33700000
L     615.40000000   2   0      0.00000000
```

WBWL - Details of Model for Towers Individually Driven - Exhibit 3

Using Expert MININEC Broadcast Professional, Version 14.5, the WBWL three tower array was modeled. Each tower was represented by one wire. The top and bottom wire end points were specified using electrical degrees for the frequency of 600 kHz. Each tower wire was modeled based on 10 wire segments. The towers are physically 66 electrical degrees in height, the segment length is between 6.81 and 7.289 electrical degrees.

The characteristics (height & radius) were adjusted until the modeled resistance approximately matched the measured resistance. Final adjustment to converge the model was made based on the introduction of a circuit model which consists of branches representing feedline inductances and stray capacitances. The base impedances were measured at the normal location of the current sampling TCTs (Reference Point) with the other towers opened circuited at their respective Reference Point. The method of moments model assumed loads at ground level having the reactances that were calculated for each case using the base circuit models for the open circuited towers of the array.

The modeled heights relative to the physical heights of the individual towers is within the specified range of 75% to 125%. The modeled radius is within the specified range of 80% to 150% of the cylindrical radius that represents the circumference equal to the sum of the tower face width. WBWL uses towers of uniform cross-section, triangular shape having face widths of ; T1 = 25 inches, T2 = 18 inches and T3 = 21 inches. The tower radii are T1 = .275 m, T2 = .198 m and T3 = .231 m.

TOWER	Physical Height (deg)	Modeled Height (deg)	Modeled % of Height	Modeled Radius (m)	%Equivalent Radius
1(E)	66.0	68.10	103.2	0.29	105.5
2(Ctnr)	66.0	68.65	104.0	0.21	106.1
3(W)	66.0	72.89	110.4	0.24	103.9

The following pages show the method of moments model details of the individually driven towers.

WBWL Tower 1 Self (all others OC)

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.29	10
		0	0	68.1		
2	none	90.	270.	0	.21	10
		90.	270.	68.65		
3	none	180.	270.	0	.24	10
		180.	270.	72.89		

Number of wires = 3
current nodes = 30

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	6.81	3	7.289
radius	2	.21	1	.29

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.6	0	1	.0189167	.0202472

Sources

source	node	sector	magnitude	phase	type
1	1	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	0	0	0	0
2	11	0	-4,441.	0	0	0
3	21	0	1,300.9	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.6	17.494	-103.28	104.75	279.6	15.338	-1.1342	-6.3857

WBWL T2 Self (all others OC)

```
GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire  caps Distance     Angle        Z            radius       segs
 1    none 0            0            0            .29           10
           0            0            68.1
 2    none 90.          270.         0            .21           10
           90.          270.         68.65
 3    none 180.         270.         0            .24           10
           180.         270.         72.89

Number of wires          =  3
          current nodes  =  30

                          minimum                  maximum
Individual wires       wire    value             wire  value
segment length          1      6.81               3    7.289
radius                  2      .21                1    .29

ELECTRICAL DESCRIPTION
Frequencies (MHz)
     frequency                 no. of  segment length (wavelengths)
 no. lowest       step          steps   minimum        maximum
 1   .6           0              1      .0189167       .0202472

Sources
source node    sector  magnitude      phase          type
 1      11      1       1.             0              voltage

Lumped loads
              resistance    reactance     inductance  capacitance passive
load  node    (ohms)        (ohms)        (mH)        (uF)        circuit
 1     1      0             1,858.        0           0            0
 2     11     0             0             0           0            0
 3     21     0             1,300.9       0           0            0

IMPEDANCE
   normalization = 50.
freq     resist   react    imped    phase    VSWR    S11      S12
(MHz)    (ohms)   (ohms)   (ohms)   (deg)            dB       dB
source =  1; node 11, sector 1
.6       17.825   -107.51  108.98   279.4    16.068  -1.0826  -6.5634
```

WBWL T3 Self (all others OC)

```
GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire  caps Distance     Angle        Z            radius      segs
 1    none 0            0            0            .29          10
           0            0            68.1
 2    none 90.          270.         0            .21          10
           90.          270.         68.65
 3    none 180.         270.         0            .24          10
           180.         270.         72.89

Number of wires          =  3
          current nodes  =  30

                          minimum                  maximum
Individual wires       wire    value             wire  value
segment length          1      6.81               3    7.289
radius                  2      .21                1    .29

ELECTRICAL DESCRIPTION
Frequencies (MHz)
     frequency                 no. of  segment length (wavelengths)
 no. lowest       step         steps   minimum        maximum
 1   .6           0             1      .0189167       .0202472

Sources
source node    sector  magnitude      phase          type
 1      21      1       1.             0              voltage

Lumped loads
              resistance    reactance     inductance  capacitance passive
load  node    (ohms)        (ohms)        (mH)        (uF)        circuit
 1     1      0             1,858.        0           0            0
 2     11     0             -4,441.       0           0            0
 3     21     0             0             0           0            0

IMPEDANCE
   normalization = 50.
freq     resist   react    imped    phase    VSWR    S11      S12
(MHz)    (ohms)   (ohms)   (ohms)   (deg)            dB       dB
source =  1; node 21, sector 1
.6       21.079   -79.745  82.484   284.8    8.7126  -2.0027  -4.3246
```

WBWL - Details of Model for DA-NIGHT - Exhibit 4

Using Expert MININEC Broadcast Professional, Version 14.5, with the individual tower's characteristics that were verified by the individual tower impedance measurements, calculations were made to determine the complex voltage values for sources located at ground level under each tower of the array to produce current moment sums for the towers that, when normalized, equated to the theoretical field parameters of the authorized directional antenna pattern.

Tower	Wire	Base Node
1(E)	1	1
2(Cntr)	2	11
3(W)	3	21

It should be noted that voltages and currents shown on the tabulations that are not specified as "rms" values are the corresponding peak values.

WBWL Full Nighttime Model

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = .6 MHz

tower	field ratio magnitude	phase (deg)
1	.769	-159.
2	1.	0
3	.631	156.

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	1,072.21	113.4	11.7343	201.3
11	1,473.32	273.3	15.1533	.4
21	756.65	68.1	8.96731	156.3

Sum of square of source currents = 895.459
Total power = 1,800. watts

TOWER ADMITTANCE MATRIX

admittance	real (mhos)	imaginary (mhos)
Y(1, 1)	.00157952	.00943428
Y(1, 2)	.000609443	-.000804177
Y(1, 3)	-.000947672	-.000601011
Y(2, 1)	.00060942	-.000804186
Y(2, 2)	.00119719	.00913927
Y(2, 3)	.000718555	-.00124455
Y(3, 1)	-.000947703	-.000600959
Y(3, 2)	.000718413	-.00124465
Y(3, 3)	.0030128	.0118021

TOWER IMPEDANCE MATRIX

impedance	real (ohms)	imaginary (ohms)
Z(1, 1)	17.5776	-103.236
Z(1, 2)	9.57926	-8.04027
Z(1, 3)	-3.87286	-7.92167
Z(2, 1)	9.57938	-8.04012
Z(2, 2)	17.5854	-107.554
Z(2, 3)	10.4836	-8.77456
Z(3, 1)	-3.87247	-7.92177
Z(3, 2)	10.4845	-8.77323
Z(3, 3)	21.1545	-79.7099

WBWL Full Nighttime Model

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.29	10
		0	0	68.1		
2	none	90.	270.	0	.21	10
		90.	270.	68.65		
3	none	180.	270.	0	.24	10
		180.	270.	72.89		

Number of wires = 3
current nodes = 30

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	6.81	3	7.289
radius	2	.21	1	.29

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.6	0	1	.0189167	.0202472

Sources

source	node	sector	magnitude	phase	type
1	1	1	1,516.34	113.4	voltage
2	11	1	2,083.59	273.3	voltage
3	21	1	1,070.06	68.1	voltage

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.6	3.3446	-91.313	91.375	272.1	64.861	-.26785	-12.232
source = 2; node 11, sector 1							
.6	4.8973	-97.104	97.228	272.9	48.795	-.35607	-11.039
source = 3; node 21, sector 1							
.6	2.673	-84.337	84.379	271.8	71.964	-.24141	-12.67

CURRENT rms
Frequency = .6 MHz
Input power = 1,800. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	11.7342	201.3	-10.9347	-4.25736
2	0	0	6.81	10.9945	201.2	-10.2534	-3.96802
3	0	0	13.62	10.2623	201.1	-9.57582	-3.69026
4	0	0	20.43	9.41717	201.	-8.79122	-3.37603
5	0	0	27.24	8.44822	201.	-7.88973	-3.02068
6	0	0	34.05	7.35681	200.9	-6.87279	-2.62438

7	0	0	40.86	6.14858	200.9	-5.74576	-2.18891
8	0	0	47.67	4.8295	200.8	-4.51428	-1.71619
9	0	0	54.48	3.40129	200.8	-3.18005	-1.20669
10	0	0	61.29	1.84952	200.7	-1.72959	-.655173
END	0	0	68.1	0	0	0	0
GND	0	90.	0	15.1533	.4	15.1529	.105694
12	0	90.	6.865	14.2184	.2	14.2183	.0599843
13	0	90.	13.73	13.2692	.1	13.2692	.0292869
14	0	90.	20.595	12.17	0.0	12.17	5.56E-03
15	0	90.	27.46	10.9086	359.9	10.9086	-.0122772
16	0	90.	34.325	9.48824	359.9	9.48821	-.0245643
17	0	90.	41.19	7.9173	359.8	7.91724	-.0313843
18	0	90.	48.055	6.20486	359.7	6.20477	-.0327194
19	0	90.	54.92	4.35497	359.6	4.35488	-.0284608
20	0	90.	61.785	2.35202	359.6	2.35195	-.0182811
END	0	90.	68.65	0	0	0	0
GND	0	180.	0	8.96726	156.3	-8.20849	3.61003
22	0	180.	7.289	8.43899	156.2	-7.71932	3.4101
23	0	180.	14.578	7.88979	156.1	-7.21296	3.19719
24	0	180.	21.867	7.24358	156.	-6.61882	2.94292
25	0	180.	29.156	6.49518	156.	-5.93206	2.64538
26	0	180.	36.445	5.6482	155.9	-5.15603	2.30598
27	0	180.	43.734	4.70947	155.8	-4.29703	1.92733
28	0	180.	51.023	3.6863	155.8	-3.36184	1.51222
29	0	180.	58.312	2.58317	155.7	-2.35466	1.06224
30	0	180.	65.601	1.39298	155.7	-1.26912	.57421
END	0	180.	72.89	0	0	0	0

WBWL - Sample System Measurements - Exhibit 5

Using a Hewlett-Packard 8753C network analyzer and a Tunwall Radio directional coupler, in a calibrated measurement system, impedance measurements were made of the antenna monitor sampling system. The towers were placed in an open circuited condition by removing the ATU output j-plug. The measurement equipment was connected to the antenna monitor end of the sample lines and measurements were made for two conditions. The first condition was with the sample line terminated in its associated Delta Electronics TCT sampler and the second condition where the sample line was open circuited by disconnecting the line from its TCT.

The following table shows the frequencies of the first and second resonances. As the length of a distortionless transmission line is 180 electrical degrees at the difference frequency between adjacent resonant frequencies, and frequencies of resonance occur at odd multiples of 90 degrees electrical length. The sample line length at the resonant frequency closest to the carrier frequency, was found to be 450 electrical degrees. The electrical lengths at carrier frequency appearing in the following table were calculated by dividing the carrier frequency by the resonant frequency closest to the carrier and multiplying by 450 degrees.

Tower	Sample Line Open-Circuited First Frequency of Resonance (MHZ)	Sample Line Open-Circuited Second Frequency of Resonance (MHZ)	Sample Line Calculated Electrical Length at 600 kHz (Degrees)	600 kHz Measured Z with TCT-1 Connected (Ohms)
1(E)	.380130	.636150	424.43	51.4 -j1.15
2(Cntr)	.380040	.636600	424.13	50.9 -j1.41
3(W)	.380130	635790	424.67	51.7 -j1.35

The sample line lengths meet the specification that they be equal in length within one electrical degree.

The Characteristic impedance was calculated using the following formula, where R1 +jX1 and R2 +jX2 are the measured impedances at the +45 and -45 degree offset frequencies respectively:

$$Zo = ((R1^2 + X1^2)^{1/2} \bullet (R2^2 + X2^2)^{1/2})^{1/2}$$

Tower	+45 Degree Offset Frequency (MHz)	+45 Degree Measured Impedance (Ohms)	-45 Degree Offset Frequency (MHz)	-45 Degree Measured Impedance (Ohms)	Calculated Characteristic Impedance (Ohms)
1(E)	.69977	18.03 +j47.88	.57254	16.51 -j49.66	51.743
2(Cntr)	.70026	17.28 +j48.46	.57294	13.59 -j48.30	50.805
3(W)	.69937	18.22 +j47.61	.57221	15.85 -j49.68	51.558

The sample line measured characteristic impedances meet the requirement that they be equal within 2 ohms.

The TCTs were calibrated by measuring their outputs with a common reference signal using a Hewlett-Packard 8753C network analyzer in a calibrated measurement system. The TCTs were placed side by side, bolted to a two inch wide piece of copper strap with a conductor passing the reference signal through them. The outputs of the TCTs were fed into the Channel A and Channel B receiver inputs of the 8753C, which was set up to measure the relative ratios and phases of the output voltages. The following results were measured for the carrier frequency, 600 kHz:

Tower	Ratio	Phase (deg)	TCT Model #	TCT Serial #
1	1.0004	+0.2620	TCT-1	17971
2	Reference	+0.0000	TCT-1	17972
3	1.0012	+0.2340	TCT-1	17973

TCT-1 are 0.5 Volt/amp toroidal current transformers manufactured by Delta Electronics. These TCTs are rated for absolute magnitude accuracy of +/- 2% and absolute phase accuracy of +/- 3 degrees. The maximum measured transformer-to-transformer variation among the three was 0.12% and 0.26 degree, and as such provide far more accurate relative indications than could be the case within the manufacturer's rated accuracy.

WBWL - Reference Field Strength Measurements - Exhibit 6

Reference field strength measurements were made using a Potomac Instruments FIM-4100 meter, the meter being factory calibrated July 27, 2009. Measurements were made at three point locations along each construction permit radial and along a radial through the major lobe of the directional pattern. The following pages contain the measured field strength values, the GPS coordinates and point descriptions.

WBWL, 600 kHz.

Nighttime Reference Field Strength Measurements

Radial Deg. T	Point Num.	Distance (km)	Field (mV/m)	Coordinates (NAD 83) Lat. N	Long. W	Description
14.0	1	2.01	22.8	30-19-04.0	81-45-10.3	Stuart Ave., SW of Fuelman at two palm trees.
	2	3.63	12.3	30-19-55.1	81-44-56.3	Broadway & Agmac, across Agmac from fire hydrant.
	3	5.73	7.85	30-21-01.0	81-44-36.9	12th & Ellis, 50 ft. South of 2155 mailbox east side of Ellis.
90.0	1	1.10	775	30-18-00.7	81-44-55.6	Delmar St., even with Jungle Jim of child care center.
	2	2.00	377	30-18-00.7	81-43-44.7	1287 Randolph, west side of road.
	3	4.51	190	30-18-00.7	81-42-39.4	3673 Blanding/Park, at grocery store.
166.0	1	2.60	17.3	30-16-39.1	81-45-06.5	Burpee & Lucent at street sign.
	2	4.16	10.1	30-15-50.1	81-44-52.1	Aldington between Cobalt & Jammes at storm drain.
	3	6.72	6.75	30-14-29.9	81-44-28.1	6135 Goodman at mailbox.
227.5	1	2.65	26.4	30-17-02.6	81-46-41.1	Herlong & Marguis at street sign.
	2	6.35	10.8	30-15-42.3	81-48-23.4	Zambito Ave., 75 ft south of left turn.
	3	8.56	8.15	31-14-53.1	81-49-23.9	Connie Jean at rear driveway of Wheeler Power Roducts.
270.0	1	3.06	51.0	30-17-59.5	81-47-22.7	1366 Altman at mailbox.
	2	6.39	27.0	30-17-59.7	81-49-27.7	Cul-de-sac of Whisper Cove in center.
	3	8.72	22.9	30-18-00.6	81-50-55.0	Chaffe Road at creek.
312.5	1	2.80	22.0	30-19-02.2	81-46-45.7	Stuart & Greenland at street sign.
	2	6.89	9.0	30-20-31.6	81-48-38.8	9260 Rewis Rd., across from mailbox.
	3	8.12	7.14	30-20-57.8	81-49-13.3	9720 Lazy J Drive at group of three mailboxes.

WBWL - Direct Measurement of Power - Exhibit 7

Measurement of the Common Point Impedance for the Nighttime Directional pattern was made with a Hewlett-Packard 8753-C Vector Network Analyzer and a Tunwall Radio Directional Coupler. The analyzer was connected at the node directly adjacent to the common point current meter. The resistance value was adjusted with the common point matching network to provide the correct impedance at the authorized common point current value for each directional antenna pattern. The measured Common Point Impedance is R = 50.0 Ohms, X= -j 7.0 Ohms for Night operation. The common point current of 6.24 Amperes for Nighttime was established.

WBWL operates Non-directional during daytime hours from Tower 3(W). This has been the non-directional tower for a number of license renewal cycles. This tower serves as the support for an auxiliary FM antenna (12-bay) whose transmission line crosses the base insulator through an ERI Model 425 Iso-coupler.

Measurement of the non-directional Tower 3 base drive point impedance was made with a Hewlett-Packard 8753-C Vector Network Analyzer and a Tunwall Radio Directional Coupler. The analyzer was connected at the node directly adjacent to the Base Current meter. The measured impedance at this point is R = 21.13 Ohms, X = -j 70.9 Ohms for daytime Non-directional operation. The base current of 15.38 Amperes for Daytime non-directional operation was established.

WBWL - Antenna Monitor and Sample System - Exhibit 8

WBWL utilizes a Potomac Instruments AM-1901 antenna monitor. The antenna monitor is provided an ATU output sample over equal length (see Exhibit 5) sample lines from Delta Electronics Toroidal Current Transformers, model TCT-1, that provides a 0.5 volt per ampere. The sample lines are LDF-38-50J, 3/8 inch foam dielectric coaxial cable. Equal length short pieces of RG-58 cable facilitate connection to the antenna monitor in the equipment rack.

The calibration of the PI-AM1901 was verified by comparing the tower current ratio and phase, at the carrier frequency, using a Hewlett-Packard 8753C network analyzer. The carrier reference signal, supplied by the analyzer was amplified and fed into the common point of the respective directional antenna. The network analyzer was calibrated using the internal calibration function at the time of measurement.

For the nighttime directional case, Tower 2 (ref) sample line was connected to the analyzer "B" receiver port and Towers 1 and 3 sample lines were successively connected to the analyzer "A" receiver port.

The measurements of the antenna monitor ratio and phase were made immediately upon applying full authorized power to each directional mode after an adequate inactive period, so as to minimize the effects of system warming.

NIGHTTIME

Tower	Network	Analyzer	Antenna	Monitor
	Ratio	Phase	Ratio	Phase
1	0.758	-159.0	0.761	-159.2
2	1.000	00.0	1.000	00.0
3	0.588	+156.0	0.588	+155.9

The network analyzer and the antenna monitor agreed within the Potomac Instruments rated antenna monitor accuracy of 0.010 ratio and 1.0 degree phase.

WBWL - Radio Frequency Radiation Considerations - Exhibit 9

Operation of WBWL will not result in exposure of the workers or the general public to levels of non-ionizing energy in excess of the limits specified in 47 CFR 1.1310. Access to the transmitter site is restricted by locked perimeter fences. Each tower base is enclosed within a locked perimeter fence spaced in accordance with Recommended Guidelines. Warning signs are posted on the entry gate and on all four sides of each tower base fence. The signs state that a potential exists for possible exposure to hazardous R.F. energy. In the case where personnel must enter the tower enclosure fences, operation is switched to non-directional operation at reduced power on Tower 3 or operation is ceased, in accordance with the WBWL RFR Plan.

WBWL - Summary of As Built Certified Array Geometry - Exhibit 10

The tower locations, as built, in relationship to Tower 1 and referenced to True North are provided in the certified document by The Crusselle Company, and contained in Appendix A. The following table shows the spacings and azimuths and their deviations from the specified base locations.

The "as-built" WBWL towers deviate from their specified locations by less than 1.05 degrees (electrical at 600 kHz) and are below the FCC tolerance of 1.5 degrees.

Station Tower Geometry Analysis

- *Enter Requested Data in Yellow Blocks*

Callsign:	WBWL	*Reference Tower:*	1
Freq. (kHz):	600 kHz	*Feet per wavelength:*	1639.285094

Tower Pair Studied	*Licensed Spacing (Electrical degrees)*	*Licensed Azimuth (Degrees True)*	*Measured Distance (feet)*	*Measured Azimuth (Degrees True)*	*Tower Location Error from Licensed (Result in Feet)*	*Tower Location Error from Licensed (Electrical Degrees)*
1 (ref)	0.0	0.0	0.0	0.0		
1 to 2	90.0	270.0	407.960	270.232	2.49	0.55 °
1 to 3	180.0	270.0	816.880	270.268	4.72	1.04 °
					--	--
					--	--
					--	--
					--	--
					--	--
					--	--

Law of Cosines Analysis

Tower Pair Studied	Licensed Specification (Side "a") of Triangle (Feet)	Licensed Azimuth Versus Measured Azimuth Difference	Included Angle A Converted to Radians	Tower Location Error from licensed position (Result in Feet)	Error in Feet Converted to Electrical Degrees	*Error Greater Greater Than 1.5° ? (6.83 ft)*
1 to 2	409.82	0.2319 °	0.004047419	2.49	0.55 °	No - Therefore Okay
1 to 3	819.64	0.2681 °	0.004679228	4.72	1.04 °	No - Therefore Okay
0	--	--	--	--	--	--
0	--	--	--	--	--	--
0	--	--	--	--	--	--
0	--	--	--	--	--	--
0	--	--	--	--	--	--
0	--	--	--	--	--	--

Appendix A

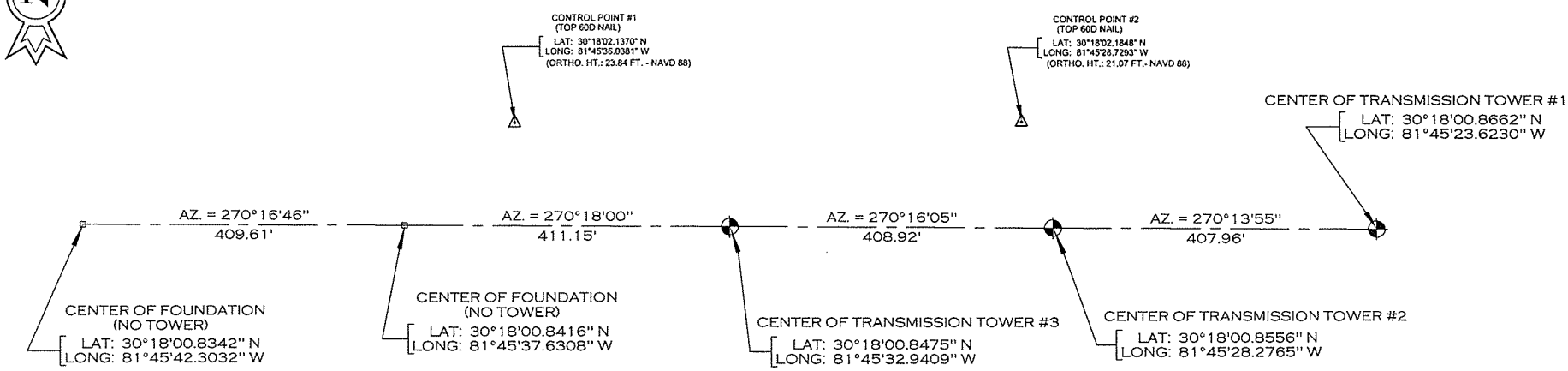
Certification of Tower Location
The Crusselle Company

TRUE NORTH
(NAD 83)

TRANSMISSION TOWER SURVEY FOR

RADIO DISNEY

LOCATED AT 6869 LENOX AVE., JACKSONVILLE, FLORIDA



SURVEY CONTROL UTILIZED

LOCATION - HERLONG AIRPORT (APPROX. 3 MI. SOUTHWESTERLY FROM SITE ALONG NORMANDY BLVD.)

FROM NGS DATABASE

PID - BC2492
NAD 83(2007) 30°16'48.85898"(N)
81°48'27.05767"(W)
83.65 FT (NAVD 88)

PID - BC2509
NAD 83(2007) 30°16'39.24160"(N)
81°48'50.25860"(W)
72.59 FT (NAVD 88)

GRAPHIC SCALE
100 0 100 200

GEORGIA REGISTERED No. 2841 LAND SURVEYOR BENJAMIN W. CRUSSELLE

DATE	DESCRIPTION

REVISIONS

THE RUSSELLE COMPANY
PROFESSIONAL LAND SURVEYORS
2981 POWDER SPRINGS ROAD
MARIETTA, GEORGIA 30064
(770) 943-5903
E-MAIL: BEN@CRUSSELLE.COM

PROJ. NO. DU6076 FILE: DU6076.DWG
FIELD SURVEY DATE: 04/07/2010 - 04/08/2010
PLAT DATE: 05/21/2010 SCALE: 1"=100'